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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/630,371	08/01/2000	LIVIA POLANYI	106699	5775

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EXAMINER	
ALBERTALLI, BRIAN LOUIS	
ART UNIT	**PAPER NUMBER**
2655	

DATE MAILED: 12/17/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/630,371	POLANYI ET AL.	
	Examiner	Art Unit	
	Brian L Albertalli	2655	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) 1-25 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) 1-25 is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Response to Arguments

1. Applicant's request for reconsideration of the finality of the rejection of the last Office action is persuasive and, therefore, the finality of that action is withdrawn.

2. Applicant's arguments, see page 2, lines 3-13, filed 11/18/2004, with respect to the rejection(s)of independent claims 1 and 13 under 35 USC § 103(a) have been fully considered and are persuasive.

The examiner agrees that since Wical indicates that the adverbial clauses that are identified at the beginning of a main clause *are not necessary to the meaning* (see column 10, lines 45-46), the adverbial clause cannot *provide context setting information for information encoded further along in the text*, as described in independent claims 1 and 13. The adverbial clause disclosed in Wical, therefore, is *not* equivalent to a modifier unit of text.

3. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection are made for claims 1-9 and 1-12 in view of Corston et al. (U.S. Patent 6,112,168), and further in view of Mann et al. (*Rhetorical Structure Theory: A Theory of Text Organization*). New grounds of rejection for claims 10 and 13-25 are made in view of Corston et al., in further view Mann et al., and further in view of Polany (*A Formal Model of the Structure of Discourse*).

Claim Objections

4. Claim 17 is objected to because of the following informalities: the term "other human language texts" lacks antecedent basis. Claim 17 is dependent on claim 13, however, claim 13 does not mention any specific human language text.

The following substitute claim language is suggested by the examiner:

--The discourse analysis method of claim 13, wherein the method is used to analyze texts in languages other than English--.

Appropriate correction is required.

Claim Rejections - 35 USC § 103

5. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

6. Claims 1-9 and 11-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Corston et al., in view of Mann et al.

In regard to claim 1 Corston et al. disclose a system (Fig. 1, computer 100) of discourse analysis usable to analyze a text (clause), comprising circuitry (CPU 110) for determining whether a unit of text is (see column 10, lines 26-34 and Table 4):

a modifier (Circumstance, column 11, cue numbers H12 and H13 in Table 4);

a content (Cause, column 9, cue number H17 and column 11, cue numbers H18, H29a, and H29b in Table 4);

a coordination (List) that links a second unit of text to a first unit of text in a structural representation of discourse where the second unit of text continues a

discourse activity begun or continued by the first unit of text (discourse tree, column 15, cue numbers H7, H8, and H9, and column 17, cue number H10 in Table 4). A discourse relationship between Clause1 and Clause 2 is hypothesized (column 10, lines 35-43). The hypothesis is used to construct a discourse tree, which represents the discourse structure (column 21, lines 12-16 and column 4, lines 29-31). A list is a set of enumerations that continue discourse activity.

a subordination (Elaboration) that links a second unit of text to a first unit of text in a structural representation of discourse (discourse tree, column 13, cue numbers H24, H26, H41, and H25 in Table 4);

a binary (Joint) that links a second unit of text (Clause 2) to a first unit (Clause1) of text in a structural representation of discourse (discourse tree) if the relationship between the first unit of text and the second unit of text is neither a coordination relationship nor a subordination relationship. A discourse relationship between Clause1 and Clause 2 is hypothesized (column 10, lines 35-43). The hypothesis is used to construct a discourse tree, which represents the discourse structure (column 21, lines 12-16 and column 4, lines 29-31). The joint relationship is selected when the relationship is not an Elaboration (corresponding to a subordination relationship), and when no other symmetric relationship has been posited between Clause1 and Clause2 (column 13, entry for JOINT relationship H0, Condition 1 column, lines 1-4 and lines 19-25). The List relationship (corresponding to a coordination relationship) is a symmetric relationship, therefore, the Joint relationship is selected when the first unit of text

(Clause1) and the second unit of text (Clause2) are not in a coordination (List) relationship nor a subordination (Elaboration) relationship.

Corston et al. further disclose an example of a Sequence relationship (column 5, lines 25-29) and disclose that additional cues can be added in order to hypothesize additional relation types between clauses (column 19, lines 30-36).

Corston et al. are silent as to the details of what properties the Circumstance, Cause, Elaboration, and Sequence relationships have. Furthermore, Corston et al. do not explicitly disclose that the Sequence relationship is used in the analysis of the text.

Mann et al. disclose what properties Circumstance, Cause, List, Elaboration, and Sequence relationships have.

Mann et al. disclose modifier (Circumstance) is a unit of text (S) that provides context setting information (sets a frame work) for information encoded further along in the text (R). A satellite (S, corresponding with Clause1 in Corston et al.) clause sets the framework in which the reader (R) is intended to interpret the situation presented in a node (N, corresponding with Clause2 in Corston et al.) clause (page 48, section I.1, constraints on the N+S combination). Setting a framework in which to interpret a clause is equivalent to providing context setting information. Mann et al. further disclose the satellite (S) sets the framework for the node (N) further along in the text (page 50, see Fig. I-2, relationship between 2-3 and 4-5). On page 49, corresponding with Fig. I-2, clause 2-3 (lines 5-6) provide the context setting information for clause 4-5 (lines 7-8). Specifically, line 5 provides the context setting information the reader needs to understand that "the station" in line 7 is *the station at Occidental College*. Furthermore,

the clause is encoded in the form of "(VERB)ing" (ATTENDing), and is separated by a comma from the rest of the sentence. Corston et al., therefore, necessarily disclose a modifier determining circuit that determines if a unit of text provides context setting information for information encoded further along in the text.

Mann et al. disclose a content (Cause) is a unit of text that is a property of some entity and provides expression of an action. The node clause (N) is an expression of action that is caused by the situation presented in the satellite (S, page 58, constraints on the N+S combination, lines 1-2). In the example given on page 58, units 18 and 19 are statements of action caused by unit 17 (lines 1-5 after table). Having been "serviced" is a property of "the typewriter". Corston et al. therefore, necessarily disclose a content determining circuit that determines if a unit of text is a property of some entity and provides expression of an action.

Mann et al. disclose a subordination (elaboration) is a links a first unit of text (N) to a second unit of text (S) in a structural representation of discourse if the second unit of text elaborates upon the discourse activity begun by the first unit of text (the satellite S presents additional detail about the situation that is presented in the node N, page 52, section I.3, constraints on the N+S combination). The link is disclosed in Fig. I-4 on page 53. Corston et al. therefore, necessarily disclose a subordination determining circuit that links a second unit of text to a first unit of text in a structural representation of discourse if the second unit of text elaborates upon the discourse activity begun by the first unit of text.

Mann et al. further disclose an operator (sequence) is a unit of text that provides commentary on aspects of organizational structure or logical structure. A sequence relation comments on either the temporal succession of the units of text, or provides a description of a according to a logical structure (such as describing a group of cars according to size, page 74, lines 1-5 below Fig. I-18). The Sequence relationship imposes an order on the units of text that it covers.

It would have been obvious to one of ordinary skill in the art at the time of invention to expand the list of cues determined by Corston et al. to include the Sequence relationship, since strong patterns of ordering particular relations exists in text, as taught by Mann et al. (page 16, section 4, lines 4-5).

In regard to claim 2, Corston et al. disclose the system and corresponding method is used to analyze a written text (body of text, column 4, lines 17-18).

In regard to claim 3, Corston et al. disclose the system and corresponding method are used to analyze any "natural language expression" (column 4, lines 18-19).

Neither Corston et al. nor Mann et al. explicitly disclose analyzing speech converted to a plurality of text units.

Official notice is taken that it is notoriously well known and recognized in the art that speech can be converted to text units.

It would have been obvious to one of ordinary skill in the art at the time of invention to further modify the combination of Corston et al. and Mann. to analyze

speech converted to text, so a user could enter text without having to type manually with a keyboard.

In regard to claim 4-7, Corston et al. disclose the system and corresponding method are used to analyze any "natural language expression" (column 4, lines 18-19). This encompasses English text, legal writing, medical writing, and any type of communication.

In regard to claim 8, Corston et al. disclose the system and corresponding method is used to analyze any type of recorded communication (a body of text is a recorded communication, column 4, lines 17-18).

In regard to claim 9, Corston et al. disclose the structural representation is a tree structure (discourse trees, column 7, lines 29-31).

In regard to claims 11 and 12, neither Corston et al. nor Mann et al. disclose visually comparing a structural representation of discourse for a specific genre to the structural representation of discourse for the text.

Official notice is taken that it is notoriously well known and recognized in the art to visually compare a structural representation of discourse for a specific genre to the structural representation of discourse for the text in order to allow the user to quickly determine how well the user's text conforms to the style of the genre.

It would have been obvious to one of ordinary skill in the art at the time of invention to further modify the combination of Corston et al. and Mann et al. to visually compare a structural representation of discourse for a specific genre to the structural representation of discourse for the text in order to allow the user to quickly determine how well the user's text conforms to the style of the genre.

7. Claims 10 and 13-25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Corston et al., in view of Mann et al., and further in view of Polanyi (*A Formal Model of the Structure of Discourse*).

In regard to claims 10 and 23, neither Corston et al. nor Mann et al. disclose the tree structure is an open right tree structure.

Polanyi discloses an open right tree structure (page 603, section 2.1, 3rd paragraph, lines 1-6).

It would have been obvious to one of ordinary skill in the art at the time of invention to further modify the combination of Corston et al. and Mann et al. to construct an open right tree structure, in order to assign the structural description on a left-to-right, clause-by-clause basis, which is necessary for discourse processing in real time, as taught by Polanyi (page 611, section 3, 1st paragraph and 2nd paragraph, lines 5-9).

In regard to claim 13, Corston et al. disclose a method of discourse analysis of a text comprising:

segmenting a text into a plurality of units of text (Fig. 2, step 202, input text is divided into clauses, column 7, lines 25-26);

As discussed above in reference to the corresponding apparatus claim 1, Corston et al. also disclose determining whether a unit of text is a modifier (Circumstance) providing context setting information for information encoded further along in the text, or content unit (cause) providing expression of action that is a property of some entity. Corsten et al. also disclose determining whether two units of text are in a coordination (List) relationship where the second unit of text continues a discourse activity begun or continued by the first unit of text, whether two units of text are in a subordination (Elaboration) relationship if the second unit of text elaborates upon the discourse activity begun by the first unit of text, and whether two units of text are not in a coordination (List) relationship nor a subordination (Elaboration) relationship, indicating they are in a binary relationship.

Furthermore, as discussed in reference to the corresponding apparatus claim 1, it would have been obvious to one of ordinary skill in the art at the time of invention to expand the list of cues determined by Corston et al. to include the Sequence relationship, since strong patterns of ordering particular relations exists in text, as taught by Mann et al. (page 16, section 4, lines 4-5).

However, the combination of Cortons et al. and Mann et al. discloses a different method for constructing the structural representation than the instant claim.

Polanyi discloses a method of constructing a discourse tree comprising:

inserting a first unit of text into a structural representation of discourse as a root node (page 620, Fig. 12, clause a is a root node, section 4, 3rd paragraph);

for each one of the plurality of units of text not yet inserted into the tree:

selecting that unit of text as the current unit of text (clause b is processed, page 620, section 4, 4th paragraph, lines 1-3);

selecting that node in the structural representation of discourse to attach the current node to (clause b is attached to node a, Fig. 13, page 620, section 4, 4th paragraph, lines 1-3).

When adding a new node to the tree, either the selected node is replaced with the corresponding relationship, the selected unit of text is added as the left child of the node, and a new node is added as a right child node (such as the addition of node b from Fig. 12 to Fig. 13), or the first node is replaced with the corresponding relationship, the first node is added as a left child node, and the selected unit of text as a right child node (such as the addition of node d in Fig. 15, page 622).

It would have been obvious to one of ordinary skill in the art at the time of invention to further modify the combination of Corston et al. and Mann et al. to build a discourse tree as disclosed in Polanyi et al., in order to assign the structural description on a left-to-right, clause-by-clause basis, which is necessary for discourse processing in real time, as taught by Polanyi (page 611, section 3, 1st paragraph and 2nd paragraph, lines 5-9).

In regard to claim 14, Corston et al. disclose the system and corresponding method is used to analyze a written text (body of text, column 4, lines 17-18).

In regard to claim 15, Corston et al. disclose the system and corresponding method are used to analyze any "natural language expression" (column 4, lines 18-19).

Neither Corston et al. nor Mann et al. explicitly disclose analyzing speech converted to a plurality of text units.

Official notice is taken that it is notoriously well known and recognized in the art that speech can be converted to text units.

It would have been obvious to one of ordinary skill in the art at the time of invention to further modify the combination of Corston et al. and Mann. to analyze speech converted to text, so a user could enter text without having to type manually with a keyboard.

In regard to claim 16-20, Corston et al. disclose the system and corresponding method are used to analyze any "natural language expression" (column 4, lines 18-19). This encompasses English text, other human language texts, legal writing, medical writing, and any type of communication.

In regard to claim 21, Corston et al. disclose the system and corresponding method is used to analyze any type of recorded communication (a body of text is a recorded communication, column 4, lines 17-18).

In regard to claim 22, Corston et al. disclose the structural representation is a tree structure (discourse trees, column 7, lines 29-31).

In regard to claims 24 and 25, neither Corston et al. nor Mann et al. disclose visually comparing a structural representation of discourse for a specific genre to the structural representation of discourse for the text.

Official notice is taken that it is notoriously well known and recognized in the art to visually compare a structural representation of discourse for a specific genre to the structural representation of discourse for the text in order to allow the user to quickly determine how well the user's text conforms to the style of the genre.

It would have been obvious to one of ordinary skill in the art at the time of invention to further modify the combination of Corston et al. and Mann et al. to visually compare a structural representation of discourse for a specific genre to the structural representation of discourse for the text in order to allow the user to quickly determine how well the user's text conforms to the style of the genre.

Conclusion

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Marcu et al. (U.S. Patent Application Publication 2002/0046018) disclose a method of summarizing text using a discourse tree. Zhao et al. (U.S. Patent Application Publication 2002/0042707) disclose a method for parsing a text stream to

establish a structural description of the stream. Marcu et al. (U.S. Patent Application Publication 2002/0046018) disclose a method to generate a discourse tree.

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Brian L Albertalli whose telephone number is (703) 305-1817. The examiner can normally be reached on Mon - Fri, 8:00 AM - 5:30 PM, every second Fri off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Talivaldis Smits can be reached on (703) 305-3011. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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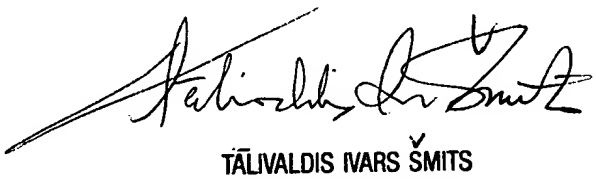

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